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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,218	11/27/2003	John Hsuan	NAUP0544USA	1217
27765 7590 04/23/2007 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER NGUYEN, TANH Q	
			ART UNIT	PAPER NUMBER
			2182	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		04/23/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/707,218

Applicant(s)

HSUAN, JOHN

Examiner

Tanh Q. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application, by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because it is not dated.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitation "the captured image" in lines 12-13. Claim 12 recites the limitation "the captured image" in lines 14-15. There is insufficient antecedent basis for the limitation in the respective claims.

5. Claim 1 recites the limitation "the processor generates the processed data by calculating a location address if the multifunctional optical device is in the mouse mode" in lines 10-12. Claim 12 recites the same limitation in lines 12-14. It appears that the processed data is generated from a calculation of a location address based on the image information when the multifunctional optical device is in the mouse mode. The claims, as recited, do not clearly indicate how the processed data is related to

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calculating a location address.

6. Claims 7, 16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are a first light source and a first color (Note that claims 7, 16 include a second light source and a second color, without a first light source and a first color).

7. The rejections that follow are based on the examiner's best interpretation of the claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 5-9, 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Fåhraeus et al. (US 6,906,699).

10. As per claim 1, Fåhraeus teaches a multifunctional optical device [FIGs. 1-2], comprising:

a switch [27, FIGs 1-2] for switching the multifunctional optical device between a mouse mode, a camera mode, and a scanner mode [col. 6, lines 44-47];

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an optical sensor array [8, FIGs. 1-2] comprising a plurality of optical sensors for capturing images and providing image information [col. 6, lines 3-6; col. 6, lines 22-25; col. 10, lines 39-42];

a processor [20, FIG. 2] for receiving the image information from the optical sensor array and generating processed data [col. 6, line 64-col. 7, line 8], wherein the processor generates the processed data by calculating a location address if the multifunctional optical device is in the mouse mode [302-303, FIG. 3; col. 7, line 18-col. 8, line 18], processes the captured image if the multifunctional optical device is in the camera mode [FIG. 9; col. 10, lines 12-50], and combines a set of linear images if the multifunctional optical device is in the scanner mode [703, FIG. 7; FIGs. 8a-8c; col. 9, line 11-col. 10, line 11]; and

an interface port [26, FIGs. 1-2] for interfacing the multifunctional optical device with a host computer and for outputting the processed data from the processor to the host computer [col. 6, lines 43-44].

Note also that the recited claim includes the limitation “the processor generates the processed data by calculating a location address if the multifunctional optical device is in the mouse mode”, and the limitation “output processed data...to the host computer”, hence allowing output of only processed data pertaining to the mouse mode. The claim does not require the processor to generate processed data for the camera mode and/or the scanner mode.

11. As per claims 5-9, 11, Fåhraeus teaches a memory [22, 23 - FIG. 2] for storing device settings of the multifunctional optical device and for temporarily storing images

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captured by the optical sensor array [col. 4, lines 49-51; col. 6, lines 32-36];

a first light source [6, FIGs. 1-2] for illuminating a surface on which the multifunctional optical device is placed with light of a first color when the multifunctional optical device is in the mouse mode [col. 6, lines 7-8; col. 7, lines 25-29];

a second light source [28, FIGs. 1-2] for illuminating a surface on which the multifunctional optical device is placed with light of a second color (which may, or may not be the same as the first color) when the multifunctional optical device is in the scanner mode [col. 9, lines 23-24];

the processor being a digital signal processor [the processor processing digital signal - see FIGs. 3-9];

the optical sensor array being a charge coupled device [col. 6, lines 22-25]; and

the interface port interfacing with the host computer through a Bluetooth communication protocol [col. 4, lines 52-56].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2-3, 10, 12-13, 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fähræus et al..

14. As per claim 2, Fähræus teaches the optical sensor array being a CCD that is

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commercially available [col. 6, lines 22-25] and images being recorded as a plurality of pixels having colour values [col. 10, lines 40-42], but does not specifically teach each optical sensor in the CCD providing information for only one color selected from a group of at least three component colors.

Since the CCD is commercially available, and since it is known for each optical sensor in a commercially available CCD to provide information for only one color selected from a group of RGB colors when capturing an image, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use such CCD in the multifunctional optical device to capture an image.

15. As per claim 3, Fåhraeus does not teach only optical sensors providing image information for a first color being activated when the multifunction optical device is in the mouse mode.

Since a mouse mode only requires location information, and since no more than one color is needed for location information, it would have been obvious to one of ordinary skill in the art at the time the invention was made to activate only the optical sensors providing image information for a given color in order to reduce the amount of data generated for location information.

Alternatively, it was known in the art for an optical mouse to use a red light and red optical sensors to capture location information, hence making it obvious to one skilled in the art for the multifunctional optical device to use a red light and only red optical sensors to capture location information.

16. As per claim 10, Fåhraeus does not teach the optical sensor array being a

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CMOS optical sensor array. Since it was known in the art at the time the invention was made to use a CMOS optical sensor array as an alternative to a CCD array in order to capture data in multifunctional optical device, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CMOS optical sensor array instead of a CCD array in the multifunctional optical device - in order to capture data.

In addition, applicant discloses using a CCD or an CMOS optical sensor array as the optical sensor array [last 3 lines of [0019]], hence supporting a multifunctional optical device with a CMOS optical sensor array being an obvious variant of a multifunctional optical device with a CCD, and also indicating that the use of a CMOS optical sensor array instead of a CCD being not significant.

17. As per claim 12, the claim includes the limitations of claims 1-2, 5 and is similarly rejected.

18. As per claims 13, 15-20, see the rejections of claims 3, 6-11 above.

19. Claims 2-3, 10, 12-13, 15-20 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Nakakuki (US 7,113,206).

20. As per claim 2, Fåhraeus teaches the optical sensor array being a CCD that is commercially available [col. 6, lines 22-25] and images being recorded as a plurality of pixels having colour values [col. 10, lines 40-42], but does not specifically teach each optical sensor in the CCD providing information for only one color selected from a group of at least three component colors.

Nakakuki teaches obtaining a color image through a CCD by arraying a plurality

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of colors of color filters in a mosaic pattern such as a Bayer array [FIG. 1] which comprises filters of three primary colors (RGB) allowing each optical sensor of the CCD to provide image information for only one color selected from the RGB colors [col. 1, lines 11-30].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a Bayer array, as is taught by Nakakuki, in order to allow each optical sensor in the CCD to provide image information for only one color selected from three primary colors.

21. As per claims 3, 10, 12-13, 15-20, see the rejections of claims 3, 10, 12-13, 15-20 over Fåhraeus above.

22. Claims 4, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Kitamura et al. (US 5,140,148). Claim 14 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Nakakuki, and further in view of Kitamura et al..

Fåhraeus/Nakakuki do not teach the optical sensor array being logically divided into a plurality of blocks of optical sensors, and when the multifunctional optical device is in the scanner mode, successive blocks of optical sensors are sequentially activated to capture the set of linear images.

Kitamura teaches an optical sensor array [B1-B40, FIG. 1] of a scanner [col. 1, lines 13-15] being logically divided into a plurality of blocks of optical sensors [B1-B40, FIG. 1; FIG. 2; col. 2, lines 36-45], and successive blocks of optical sensors being sequentially activated [FIGs. 4A-4B; col. 2, lines 3-8] to reduce noise while capturing a

set of linear images [col. 3, lines 30-34].

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical sensor array to be logically divided into a plurality of blocks of optical sensors when the multifunctional optical device is in the scanner mode, and for successive blocks of optical sensors to be sequentially activated, as is taught by Kitamura, in order to reduce noise while capturing the set of linear images - hence producing better images.

23. Claims 4, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Ackley et al. (US 6,375,075). Claim 14 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Nakakuki, and further in view of Ackley et al..

Fåhraeus/Nakakuki do not teach the optical sensor array being logically divided into a plurality of blocks of optical sensors, and when the multifunctional optical device is in the scanner mode, successive blocks of optical sensors are sequentially activated to capture the set of linear images.

Ackley teaches an optical sensor array [44, FIG. 2; col. 3, lines 17-19] of a scanner [10, FIG. 2; col. 3, lines 13-15] being logically divided into a plurality of blocks of optical sensors [62, 64, 66, 68 - FIG. 2; col. 3, lines 58-60]; and successive blocks of optical sensors being activated to capture a number of color separated images of a color symbol, with each image being formed on a block of optical sensors [col. 4, lines 17-19] in order to better decode (i.e. scan) the color coded symbol [col. 1, lines 58-62]. Ackley would have suggested to one skilled in the art that the successive blocks of

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optical sensors are activated sequentially when successive (or sequential) color coded symbols are to be captured.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical sensor array to be logically divided into a plurality of blocks of optical sensors when the multifunctional optical device is in the scanner mode, and for successive blocks of optical sensors to be sequentially activated, as is suggested by Ackley, in order to better scan a plurality of successive color coded symbols.

Conclusion

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Q. Nguyen whose telephone number is 571-272-4154. The examiner can normally be reached on M-F 9:30AM-7:00PM.

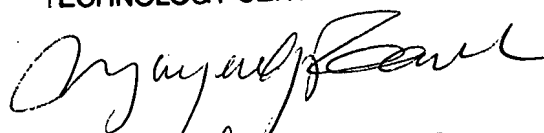
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TANH Q NGUYEN
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100


April 12, 2007

TQN
April 11, 2007